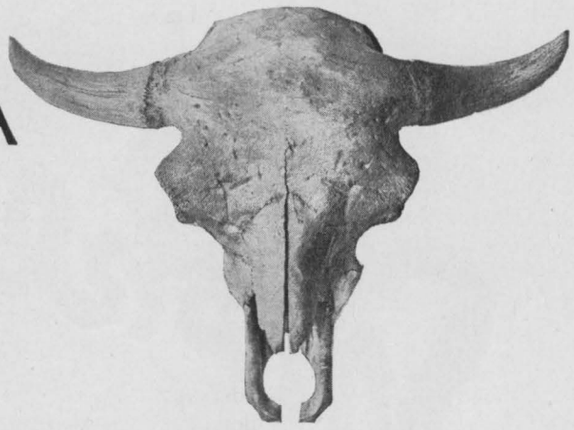
Here is the skull of a comparatively recent buffalo, unearthed in the Harney Lake basin, Oregon

CALIFORNIA BUFFALO of Long Ago



This is the skull of the larger, heavier buffalo that roamed over California in the remote Ice Age

By CHESTER STOCK

THE vast range of the buffalo over the North American Continent just prior to the period of western exploration and penetration of its domain by the white man evidently did not include that great stretch of country lying between what is now Western Utah and the Sierra Nevada. Before the days of 'forty-nine, when the boundaries of California were not defined as they now are, the accounts of travellers that refer to the presence of buffalo in "Eastern California" relate in reality to their occurrence in territory lying as far east as Wyoming and Utah. While the north-south trending mountain ranges and intervening valleys of Nevada served effectively to impede the western movement of buffalo across this arid area, such was not the case in more northerly latitudes. In Oregon, for example, the modern species is known to have ranged to the Blue Mountains and as far west as the Harney Lake basin.

Harney Lake is now dry and in recent years the fertile bottom lands of this basin have undergone agricultural development. The tilling of the soil, particularly along the old strand lines of the former lake, have brought to the surface remains of the living species of bison. Skulls are fairly numerous and some of these are now prominently displayed on fence posts and on the sides of barns where they have been nailed by ranchers as souvenirs. So far as we know, the first recorded information of this westerlymost distribution of buffalo in Oregon was made by Peter Skene Ogden, explorer and trapper, who discovered Harney Lake in 1826. Although living animals were not observed by him at the time of his visit, Ogden remarks: "Buffalo have been here, and heads are to be seen." This western representative of the plains buffalo is now recognized as belonging to a distinct race and biologists have given it the name *Bison bison oregonus.*

That the buffalo of south-central Oregon were able within comparatively recent times to extend their range southward into the northeastern corner of California and thence still farther to the south through the semi-arid and arid basins of Eastern California and Western Nevada, as far as Honey Lake Valley and Smoke Creek Desert, is strongly indicated by such well-established place names as Buffalo Meadows, Buffalo Creek and Buffalo Cañon in Nevada and by the accounts of early Indians who inhabited the region. No less an authority than C. Hart Merriam accepts as absolutely trustworthy the testimony of old Indians that buffalo were once to be seen in the semi-desert valleys of Modoc and Lassen counties. Their disappearance, however, occurred before the coming of the white man.

Geologically speaking, the gap in time between the existence of the modern species of buffalo in Northeastern California and that of the extinct species dating from near the end of the Ice-Age, possibly 10,000 to 15,000 years ago, is not so very great. The ancient bison share with their contemporaries, the elephant, horse and camel, the distinction of belonging to a group of extinct animals whose remains are found rather frequently in Ice-Age formations in the State. These creatures are particularly well represented in the tar beds. At Rancho La Brea, for example, the extinct species of buffalo is known by more than one hundred individuals, a number in excess of that of any other hoofed mammal found fossil in the tar. A natural inference may be drawn from this unusual occurrence that herds of buffalo once roamed over the Los Angeles plain and this indeed may well have been the case. On the other hand, their habits, in which they doubtless differed but little from modern buffalo, caused them to succumb more often than did other hoofed mammals to the deceptive appearances of the prehistoric tar pools. On the San Joaquin plain there were likewise to be found at that time many individuals of ancient bison for these animals are well represented by skeletal remains in another Ice-Age tar deposit near McKittrick, west of Bakersfield.

The common extinct species of buffalo (*Bison antiquus*) as known from the Californian area had many of the physical characteristics of the living bison. It was, however, a larger animal and considerably heavier than the living form. A full-grown bull probably had a height at the shoulder of more than six feet. The size of the hump, which depends to a considerable extent upon the length of the spines of the vertebrae in the fore part of the back, must have been quite large in some individuals, for specimens of vertebrae are available from the tar beds of Rancho La Brea in which the spine measures 26 to 27 inches in length. The skull of this extinct species can be readily distinguished from that of the living buffalo. Not only is it distinctly larger, but when viewed from in front a striking difference is seen to exist in the attitude of the horn cores. In this ancient bison they leave the skull practically at right angles and do not extend backward so far as they do in the living species. When covered by the horny sheaths the spread from tip to tip was well over a yard in the larger individuals.

Several different kinds of buffalo are known to have frequented California during the Ice-Age. The largest type to be recorded from the State is known by a complete skull found in an ancient lake bed in Shasta County. This specimen is now in the collection of the University of California. As determined by Dr. Vanderhoof of the paleontological department of the State university, the gigantic beast to which this skull belonged had a spread of horns measuring more than six and one-half feet from tip to tip. Remains of very large buffalo have been found also at Humboldt Bay and in terrace sands exposed on the south side of Mount Diablo.